

## AMENDMENT TO THE SEPCIFICATION

Change Page 1, lines 5 to 13, as follows:

5       The present invention relates to a radiation detector used  
for a positron emission computed assisted tomography ~~(CT)~~ (PET),  
a single photon emission computed assisted tomography ~~(ECT)~~ (SPECT)  
and the like, wherein the device detects a radioactive ray, i.e.  
gamma ray, emitted from a radioactive isotope (RI) administered  
10 to a subject and accumulated at a target region of the subject to  
thereby obtain a tomogram of an RI distribution at the target region.

The present invention also relates to a method of producing the  
radiation detector.

15   Change Page 3, lines 9 to 19, as follows:

The conventional ~~radiator~~ radiation detector as described above  
has the following problems. In recent years, a high-resolution  
radiation detector using super-sensitivity scintillators has been  
20 developed, wherein a large number of the scintillators are used as  
compared with the conventional radiation detector. Accordingly, a  
section of each scintillator becomes smaller than that of the  
conventional scintillator. In such a radiation detector, it is  
necessary to form the light guide optically connected to the  
25 scintillators with high accuracy, and to make a width between the  
barriers short so that the light transmission efficiency is not  
deteriorated.

Change Pages 3, line 20 to Page 4, line 4, as follows:

30       In the conventional radiation detector, the slits with  
predetermined depths are formed in a block of an optically transparent

material with a dicing saw or a wire saw, and the barriers are inserted into the slits. Accordingly, it is difficult to machine the block with high accuracy, and the slits tend to have rough surfaces and large widths. Also, in a case that the block is cut into nine pieces with the dicing saw or wire saw, and these pieces are assembled to form the slits, the process becomes complicated, resulting in high cost. Further, after the slits are machined or formed, the light reflex members are inserted. Accordingly, a gap is created between the light reflex member and the slit, thereby reducing the reflex efficiency. When the light output of the incident gamma ray is decreased, it is difficult to correctly determine the position, thereby reducing the whole image quality.